**REPORT BY MAMADOU LAMINE DIEDHIOU ON**

**DISCUSSION WITH SCIENTISTS INVOLVED IN AFRICA RISING PROJECTS IN MALI .**

**Bamako, Mali January 11 – 15, 2016**

1. **TERMS OF REFERENCE**

The initial terms of reference were to liaise with the Africa RISING West Africa project Chief Scientist and the ICRISAT scientist in-charge of the Africa RISING project in Mali to plan a 5-day workshop in Sikasso on data analysis and summary of results for scientists/partners involved in the implementation of activities of the Africa RISING. As most scientists could not travel to Sikasso, the venue of the meeting was changed to Bamako and instead of a workshop, scientists were asked to meet me at Samanko for discussion. These discussions on one to one basis had the advantages of putting the focus on the real need of the scientists and to provide the appropriate support and advice for his or her data analysis need.

Dr. Birhanu organized the meetings by sending a note to all the scientists and requesting them to book a time with me.

I also had discussions via skype with two scientists: one was based in India and one was based in Niger.

1. **ACTIVITIES**

I had a meeting with Dr Birhanu who gave me an insight of the projects being implemented by Africa Rising in Mali and to finalize the time table for my discussions with the scientists. The Africa Rising projects in Mali is an integrated project with two major components: the Technology parks trials and on farm trials conducted in different villages.

The following table shows the scientists I had discussed with. More scientists were invited to meet me but they could not make it.

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| --- | --- | --- | --- | --- |
| **N°** | **Name of Scientist** | **Institution** | **Monday-Friday, Jan 11-15, 2016** | |
| **Date** | **Time** |
| 1 | Dr. Birhanu Zemadim | ICRISAT | 11th Jan 2016 | 2-5 p.m |
| 2 | Dr. Jean Baptiste Tignegre | AVRDC | Tuesday 12 Jan 2016 | 10-12 a.m |
| 3 | Dekoro Dembele | ICRISAT | 13th Jan 2016 | 9-11 a.m |
| 4 | Cathérine Dembélé | ICRAF | 13th Jan 2016 | 2-5 p.m |
| 5 | Fatim Diallo Cisse/ Aliou Coulibaly | IER | 14th Jan 2016 | 9-12 a.m |
| 6 | Felix Badolo | ICRISAT | 14 Jan 2016 | 2-4 p.m |
| 7 | Gumma Krishna Murali | ICRISAT | 15th Jan 2016 **Via Skype** | 09 :00 - 11 :00 |
| 8 | Sapna Jarial | ICRISAT | 15th Jan 2016 **via skype** | 14-15.00 a.m |

Prior to my trip, I have not received the research protocols we requested in advance. Hence, I have not prepared any note in advance to address issues to present or discuss with the scientists.

My discussion with the scientists started with the research protocol. I emphasize the need for a research protocol to address clearly questions that the research plans to answer. It is based on those questions and considering how the data collection was organized through experimentation or Survey that the appropriate statistical methods could be suggested.

Some of the scientists did not have their data available at the time of our meeting but our discussions were based on their research protocols. Research protocols were thoroughly discussed and accordingly amended. I advised on how the data could be organized and then analyzed. I also took them through some statistical methods for making valid comparisons. One such method was the use of the Contrast methods. Most scientists were not aware of these methods that could help them answer some of the questions that may be of interest to them.

I advised on statistical outputs that need to be included in a report. I draw their attention on the need to read the author guidelines of the journal in which they plan to publish for additional information.

One of the scientists was interested in computing heretability parameters but do not have the appropriate software. The free version of Genstat cannot do it.

I left a copy of Genstat Discovery Edition Version 4 with some of the scientists. (This is a free version of GenStat which licence needs to be renewed each year).

1. **CONCLUSION & RECOMMENDATIONS**

From my discussions with the scientists, I noticed that time could be a limiting factor for some of them to value the data collected by publishing in refereed journals their work. The idea of training their research assistants on data management and on data analysis is a good initiative towards encouraging the scientists to quickly publish their results. Most scientists do not have any statistical software for data analysis or have copies that have expired and not yet renewed. Most data are entered into Microsoft Excel.

I would make the following recommendations:

* Africa Rising should make sure the scientists have an adequate statistical software for data management and data analysis. Africa Rising could request that each collaborating institution provide such statistical software to scientists working on Africa Rising projects.
* Africa Rising for all the projects should implement a data archiving policy. (See appendix)
* To encourage scientists to publish, deadlines for submission of publications (draft) in addition to reports be set.
* A brain storming session for each experiment should take place to help all the scientists involved in Africa Rising projects to raise questions that need to be answered. Before thinking of data analysis, it is important to have clear questions to which the experiments/survey should answer.

1. **PROJECTS DISCUSSED**

* Study of the impact of improved land and water management on crop productivity and ecosystem services.
* Technology park agronomic trial for comparing 6 groundnut varieties in Bougouni.
* On-farm agronomic trial comparing 6 groundnut varieties in five different villages – (Africa Rising & Gradecom joint projects).
* Testing and comparing different organic manures on improved okra varieties for women fields.
* Effect of 3 types of irrigation on fruit production of tomato and leafy vegetable production of *Moringa oleifera* and *Adansonia digitate.*
* Testing intercropping combinations for legumes and vegetables to increase productivity and profitability.
* Nutrition trial: Evaluation of different levels of fermentation of different cereals
* Cost benefit analysis of agronomic trials
* Survey on the trend of prices of agricultural products in Koutiala and in Bougouni
* Geo spatial studies ( monitoring crop land arears, development of spatial models)
* Agronomic trials comparing local and improved varieties ( cowpea, sorghum, groundnut) in different villages

**APPENDIX**

**ON DATA ARCHIVING POLICY**

# When does the archiving process start?

Data Management of which data archiving is a component should start at the beginning of the project. It is a time consuming process and needs to be planned in advance.

# What information should be archived?

The information to archive will consist of the documentation and the computer files.

The documentation of each data set should consist of:

* Final concept note or project proposal
* Research Protocol including details of sampling methodology of treatments and experimental/survey design, scientists involved, institutions, collaborators, funding agencies
* Details of all variables recorded, including variable definitions, units of measurements and coding scheme and information on how missing values are being treated. Details of derived variables including calculation formulas. The units of measurement should be expressed in the International System.
* Results of laboratory analysis of samples
* Reports, maps, publications, references.
* Index of all computer files stored in the archive (with a brief description)
* Documented computer programs used for manipulating data
* Instructions for the sequence of running programs to create intermediate data files
* Completion date, duration and budget.
* Results of the research.

Computer files should include:

* Master files (one) of the raw data – they should be in a format accessible by standard software. We should make sure that the software used for data entry is available and accessible. If not, it should be part of the archive.
* Cleaning and validation rules should be indicated.
* Program files should have internal documentation as to allow others follow the logic of data manipulation.

One file (the index file) should be created and should contain the listing of all the files for the experiment/survey together with a brief description of each file and any relevant instructions on the use/sequence of computer programs.